

REMARKS

This amendment is responsive to the Office Actions of July 21, 2006. Reconsideration and allowance of claims 2-14 are requested.

The Office Action

Claims 1, 2, 5, 6, 8, and 9 stand rejected under 35 U.S.C. § 102 as being anticipated by one or more of Vrijheid (US 6,496,006, WO 00/77926 or US 2002/0095084, WO 02/42790) or Gilderdale (US 6,453,189) or Duerr (US 5,294,886)

Claims 3 and 4 stand rejected under 35 U.S.C. § 102 as being anticipated by Gilderdale.

Claim 10 stands rejected under 35 U.S.C. § 102 as being anticipated by Gilderdale or Duerr.

Claim 11 stands rejected under 35 U.S.C. § 102 as being anticipated by Gilderdale or Vrijheid ('084).

The References of Record

In **Vrijheid** '006 and '926, a supply conductor **66** includes inductive elements **74** between segments **72**. The inductive elements provide a DC path, but block RF signals. The inductances **74** are wound with an inductance to provide frequency blocking/passing at selected frequencies. In Vrijheid '058 and '790, a similar construction is provided in a catheter **17**.

Duerr provides decoupling elements **10** in the form of inductances along a feeder **9**.

Thus, none of Vrijheid and Duerr disclose segments of a conductor separated by transformers.

The Examiner references paragraph 3, lines 14-20 of **Gilderdale** as disclosing a "transformer". The applicants ask that the Examiner compare the description in this paragraph to the definition found in the McGraw-Hill Dictionary of Scientific and Technical Terms, Sixth Edition, (2003) of **quarter-wave transformer**:

quarter-wave transformer [ELECTROMAG] A section of transmission line approximately one quarter-wavelength long, used for

matching a transmission line to an antenna or load. Also known as quarter-wave matching section.

It is submitted that column 3, lines 14-20 of Gilderdale are describing a length of quarter-wavelength coaxial transmission line and not a "transformer" in the sense of a transformer that has primary and secondary windings across which AC currents are passed but through which DC currents are blocked.

**The Claims Distinguish Patentably
Over the References of Record**

Claim 3 calls for a lead having a multiplicity of segments and a plurality of transformers. Each transformer has a first winding connected with the wires of one of the segments and another winding connected with the wires of an adjacent segment. It is submitted that the so called "folded-back balancing transformer" described at column 3, lines 14-20 of Gilderdale does not teach or fairly suggest a transformer having a winding in each of two segments for inductively coupling the two segments. Accordingly, it is submitted that **claim 3 and claims 2, 6, 7, 8, 10, and 11 dependent therefrom** distinguish patentably and unobviously over the references of record.

Claim 4 calls for a toroidal transformer. It is submitted that there is no suggestion in Gilderdale of a toroidal transformer, much less a toroidal transformer with primary and secondary windings on a toroid. Accordingly, it is submitted that **claim 4 and claims 9 and 13 dependent therefrom** distinguish patentably and unobviously over the references of record.

Claim 5 has been rewritten to set forth a connection lead including a plurality of lead segment loops. Inductive coupling loops couple adjacent pairs of the lead segment loops. Such a configuration is not suggested or fairly taught by any of the references of record. The Examiner is invited to trace the winding pattern of the inductive elements **23, 74** of Vrijheid. It will be noted that the same two wires extend the length of the illustrated conductor, which two wires wrap in a spiral on the former **24, 76**. In Duerr, the coaxial cable **9** is again continuous, but wraps in a spiral or other loop pattern in the decoupling element **10**. The references of record fail to teach or fairly suggest conductor segments in the form of loops inductively connected by a

series of other coupling loops. Accordingly, it is submitted that **claim 5 and claims 12 and 14 dependent therefrom** distinguish patentably and unobviously over the references of record.

The Drawings

The specification has been amended to correct the typographical errors noted by the Examiner in the objections to the drawings and specification. It is submitted that this obviates the Examiner's objections regarding Figures 3 and 4.

The applicants enclose a replacement sheet 3 of the drawings, which has added reference indicators "T", "141", and "142".

Regarding Figure 8, page 9, line 9 referenced by the Examiner describes the transformer as having "the form of a known T equivalent circuit". As used on page 9, "T" is not used as a reference numeral and need not be added to Figure 8.

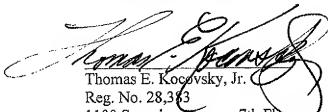
CONCLUSION

For the reasons set forth above, it is submitted that claims 2-14 distinguish patentably over the references of record and meet all statutory requirements. An early allowance of all claims is requested.

In the event the Examiner considers personal contact advantageous to the disposition of this case, she is requested to telephone Thomas Kocovsky at (216) 861-5582.

Respectfully submitted,

FAY, SHARPE, FAGAN,
MINNICH & MCKEE, LLP



Thomas E. Kocovsky, Jr.
Reg. No. 28,383
1100 Superior Avenue, 7th Floor
Cleveland, OH 44114-2579
(216) 861-5582

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quartermack [NAV ARCH] Portion of a vessel's sides about midway between the stem and the middle and between the middle and the stern. { 'kwɔrd-ə-ɹək }

quartermack [NAV ARCH] The after portion of a weather vane. { 'kwɔrd-ə-ɹək }

quartermack [MECH ENG] A machine that bores parallel holes simultaneously in such a way that the center lines of adjacent holes are 90° apart. { 'kwɔrd-ə-ɹək məkshən }

quartermack [NAV] Waves moving in a direction approximately 45° from a vessel's heading, striking the vessel on the quarter. { 'kwɔrd-ə-ɹək wæv }

quartermack phase-shift keying [ELECTR] Modulation of a microwave carrier with two parallel streams of nonreturn-to-zero data in such a way that the data is transmitted as 90° phase shifts of the carrier; this gives twice the message channel capacity of binary phase-shift keying in the same bandwidth. { 'kwɔrd-ə-ɹək fāz-ʃift kē-ɪŋ }

quartermack PSK [ELECTR] A four-level phase-shift keying system. { 'kwɔrd-ə-ɹək fāz-ʃift kē-ɪŋ }

quartermack PSK [ELECTR] A four-level phase-shift keying system. { 'kwɔrd-ə-ɹək fāz-ʃift kē-ɪŋ }

quartermack polymer [CHEM] A polymer in which the repeating groups comprise four species of monomer. { 'kwɔrd-ə-ɹək pəl-ɪ-mer }

quartermack [MATER] The grain pattern that is produced when hardwood is cut so that the annular rings are at an angle 45° or less with the board's surface. { 'kwɔrd-ə-ɹək dək }

quartermack square multiplier [COMPUT SCI] A device used to multiply out function multiplication in an analog computer by implementing the algebraic identity $xy = 1/2(x+y)^2 - 1/2(x-y)^2$. { 'kwɔrd-ə-ɹək skwɔr mʌl-ti-pəl-ɪ-er }

quartermack turn drive [MACH ENR] A belt drive connecting pulleys whose axes are at right angles. { 'kwɔrd-ə-ɹək tɜn dɪv-ɪs }

quartermack wave [ELECTR MAG] Having an electrical length of one-quarter-wavelength. { 'kwɔrd-ə-ɹək wæv }

quartermack wave antenna [ELECTR MAG] An antenna whose electrical length is equal to one quarter-wavelength of the signal to be transmitted or received. { 'kwɔrd-ə-ɹək wæv ən-ten-ə }

quartermack wave attenuator [ELECTR MAG] Arrangement of fine wire gratings, spaced an odd number of quarter-wavelengths apart in a waveguide, used to attenuate waves traveling through in one direction. { 'kwɔrd-ə-ɹək wæv ən-ten-ə-ɹər }

quartermack wave line See quarter-wave stub. { 'kwɔrd-ə-ɹək wæv lɪn }

quartermack wave matching section See quarter-wave transformer. { 'kwɔrd-ə-ɹək wæv mætʃ-ɪŋ sek-shən }

quartermack wave plate [OPTICS] A thin sheet of mica or other dielectric refracting crystal material of such thickness as to introduce a phase difference of one quarter-cycle between the ordinary and the extraordinary components of light passing through; when a plate converts circularly polarized light into plane-polarized light. { 'kwɔrd-ə-ɹək wæv plæt }

quartermack wave stub [ELECTR MAG] A section of transmission line that is one quarter-wavelength long at the fundamental frequency being transmitted; when shorted at the far end, it has a high impedance at the fundamental frequency and all odd harmonics, and a low impedance for all even harmonics. Also known as quarter-wave line; quarter-wave transmission line. { 'kwɔrd-ə-ɹək wæv stʌb }

quartermack wave termination [ELECTR MAG] Metal plate and a wire grating spaced about one-fourth of a wavelength apart in a waveguide, with the plate serving as the termination of the guide; waves reflected from the metal plate are canceled by waves reflected from the grating so that all energy is absorbed (none is reflected) by the quarter-wave termination. { 'kwɔrd-ə-ɹək wæv tər-mɪ-nə-shən }

quartermack wave transformer [ELECTR MAG] A section of transmission line approximately one quarter-wavelength long, used for matching a transmission line to an antenna or load. Also known as quarter-wave matching section. { 'kwɔrd-ə-ɹək wæv tranzfɔrm-ɪ-er }

quartermack wave transmission line See quarter-wave stub. { 'kwɔrd-ə-ɹək wæv tranz-mɪ-shən lɪn }

quartermack wave [ELECTR] A wave that is a quarter-wavelength long. { 'kwɔrd-ə-ɹək wæv }

quartermack equation [MATH] Any fourth-degree polynomial equation. Also known as biquadratic equation. { 'kwɔrd-ɪk fə-wā-zhən }

quartermack quartile [MATH] A quartile of the fourth degree. { 'kwɔrd-ɪk kwɔrt-ɪl }

quartermack burd [MATH] A fourth root of a rational number that is itself an irrational number. { 'kwɔrd-ɪk bɜrd }

quartermack [STAT] The value of any of the three random variables which separate the frequency of a distribution into four equal parts. { 'kwɔrt-ɪl }

quartermack deviation [STAT] One-half of the difference between the upper and lower, that is, the third and first, quartiles. Also known as semi-interquartile range. { 'kwɔrt-ɪl dɪ-vi-ə-shən }

quartermack [MINERAL] SiO₂ A colorless, transparent rock-forming mineral with vitreous luster, crystallizing in the trigonal trapezohedral class of the rhombohedral subsystem; hardness is 7 on Mohs scale, and specific gravity is 2.65; the most abundant and widespread of all minerals. { 'kwɔrt-ɪl }

quartermack zirconite [PETR] A quartz-rich sandstone with framework grains separated predominantly by cement rather than matrix; essentially an orthoquartzite. { 'kwɔrt-ɪl sɜr-ə-nɪt }

quartermack basalt [PETR] An igneous rock with more than 5% quartz. { 'kwɔrt-ɪl bə-səlt }

quartermack-bearing diorite See quartz diorite. { 'kwɔrt-ɪl bɛr-ɪŋ dɪ-ɔr-ɪt }

quartermack claim [MIN ENG] In the United States, a mining claim containing ore in veins or lodes, as contrasted with placer claims carrying mineral, usually gold, in alluvium. { 'kwɔrt-ɪl klæm }

quartermack clock [ELECTR] A clock using the piezoelectric property of a quartz crystal, in which the crystal is introduced into an oscillating electric circuit having a frequency nearly equal to the natural frequency of vibration of the crystal. { 'kwɔrt-ɪl klɒk }

quartermack crystal [ELECTR] A natural or artificially grown piezoelectric crystal composed of silicon dioxide, from which thin slabs or plates are carefully cut and ground to serve as a crystal plate. [MINERAL] See rock crystal. { 'kwɔrt-ɪl krɪst-əl }

quartermack crystal filter [ELECTR] A filter which utilizes a quartz crystal; it has a small bandwidth, a high rate of cutoff, and a higher unloaded Q than can be obtained in an ordinary resonator. { 'kwɔrt-ɪl krɪst-əl fɪlt-ər }

quartermack crystal resonator [ELECTR] A quartz plate whose natural frequency of vibration is used to control the frequency of an oscillator. Also known as quartz resonator. { 'kwɔrt-ɪl krɪst-əl rɪ-zən-ə-dor }

quartermack delay line [ELECTR] An acoustic delay line in which quartz is used as the medium of sound transmission. { 'kwɔrt-ɪl dɪ-lə-ɪn }

quartermack diorite [PETR] A group of plutonic rocks having the composition of diorite but with large amounts of quartz (greater than 20%). Also known as quartz-bearing diorite; tonalite. { 'kwɔrt-ɪl dɪ-ɔr-ɪt }

quartermack fiber [ENG] An extremely fine and uniform quartz filament that may be used as a torsion thread or as an indicator in an electroscope or dosimeter. { 'kwɔrt-ɪl fɪ-bər }

quartermack fiber dosimeter [ENG] A dosimeter in which radiation dose is determined from the deflection of a quartz fiber that is initially charged, repelling it from its metal support, and has its charge reduced by ionizing radiation, causing a proportional reduction in its deflection. { 'kwɔrt-ɪl fɪ-bər dɒ-sɪ-mɪ-tər }

quartermack fiber electroscopes [ELECTR] Electroscopes in which a gold-plated quartz fiber serves the same function as the gold leaf of a conventional electroscopes. { 'kwɔrt-ɪl fɪ-bər ɪ-lek-tro-skop }

quartermack fiber manometer See decremant gauge. { 'kwɔrt-ɪl fɪ-bər mæn-ɪ-mɪ-tər }

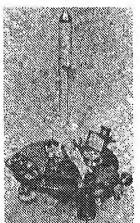
quartermack flooded limestone [PETR] A limestone characterized by an abundance of quartz particles that had been imported suddenly from a nearby source by wind or water currents, but that gradually become sparser in an upward direction and completely disappear within a few centimeters. { 'kwɔrt-ɪl flʌd-dəd lɪ-m-ə-stən }

quartermack graywacke [PETR] A graywacke containing abundant grains of quartz and chert and less than 10% each of feldspars and rock fragments. { 'kwɔrt-ɪl grɛ-ɪ-wək-ə }

quartermack horizontal magnetometer [ENG] A type of relative magnetometer used as a geomagnetic field instrument and as an observatory instrument for routine calibration of recording equipment. { 'kwɔrt-ɪl hɒr-ɪ-zən-təl mæ-gnɪ-tɪ-mɪ-tər }

quartermack iodine lamp [ELECTR] An electric lamp having a tungsten filament and a quartz envelope filled with iodine vapor. { 'kwɔrt-ɪl ɪ-ɔ-ɪn dʌmp }

QUARTZ HORIZONTAL MAGNETOMETER



Photograph of quartz horizontal magnetometer (U. S. Coastal and Geodetic Survey)